

TITLE OF INVENTION

portable campfire in a can

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CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of the filing date 08/02/2002 of provisional application serial number 60/400,371.

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STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING
COMPACT DISC APPENDIX

Not applicable

BACKGROUND OF THE INVENTION

Following is a list of patents that relate in general nature to my invention:

3,331,365	Jul., 1967	Sussan	126/25
3,667,446	Jun., 1972	Morton	126/9R
4,077,387	Mar., 1978	Bateman	126/8
4,508,094	Apr., 1985	Hait	126/9R
4,548,193	Oct., 1985	Marogil	126/30
4,977,824	Dec., 1990	Shinler	99/449
5,002,037	Mar., 1991	Armstrong et al.	126/29
5,094,223	Mar., 1992	Gonzalez	126/25R
5,233,969	Aug., 1993	Koledin	126/261
5,722,390	Mar., 1998	Hannebaum	126/541
5,785,046	Jul., 1998	Colla	126/9R
5,842,463	Dec., 1998	Hall	126/9R
5,915,371	Jun., 1999	Hering	126/9R
5,967,769	Oct., 1999	Thompson	431/288
6,220,240 B1	Apr., 2001	Grady et al.	126/519
6,227,843	May, 2001	Pedersen et al.	431/125
6,439,225 B2	Aug., 2002	Bach et al.	126/519

This invention relates to the field of portable campfires. In particular the portable campfire in a can invention relates to a compact lightweight portable campfire or cooker, which requires minimal assembly, is quick and easy to ignite and is able to self-extinguish. Traditional campfires

require a substantial amount of wood, skill to build, ignite and maintain. Traditional campfires are not self-contained and therefore are difficult to completely and safely extinguish. This portable campfire in a can invention provides quicker ignition and a visually pleasing campfire with robust flame using less fuel than a traditional campfire because the burner is designed to burn the fuel in the vertical position with a 360-degree burn pattern through the use of concentrated airflow and its chimney like shape, which creates draft. By design this portable campfire in a can invention is ideal for burning firewood, manufactured fire logs or the like. After extinguishing the fire by using the portable campfire in a can invention self-extinguishing feature the portable campfire in a can invention becomes its own clean carrying case for storage or transportation.

Unlike other devices commonly used in the prior art of portable campfires, this portable campfire in a can invention provides the ambiance of a traditional campfire in a location of choice without the need to carry or connect any additional sources of fuel such as propane or the like. The tanks required for such additional fuel are heavy to carry and, if not stored and attached properly, can be unsafe. This portable campfire in a can invention when compared with other devices used in the prior art significantly reduces the time and effort involved in preparing and properly extinguishing a campfire.

BRIEF SUMMARY OF THE INVENTION

The portable campfire in a can invention addresses common complaints about campfires and the most common reasons given why it is too much trouble to have a campfire. The following are some of, but not limited to all of, the most common reasons given. Most portable campfires are too heavy and too large to transport, assembly is complex and time consuming, carrying fuel sources such as propane or the like are often considered unacceptable, too heavy and too dangerous.

Firewood is often too heavy and messy to carry in a vehicle, such as a car, truck, RV, or boat. Also, firewood is often unavailable or too expensive given the amount required to build a satisfactory campfire of the desired size. Building, igniting and maintaining a campfire are skills lacked by many people. When ready to leave the campfire extinguishing the campfire safely and fully is often not achieved because waiting for the coals to be fully extinguished can take a very long time. When water is used to extinguish the campfire a large amount of smoke is created which is inconsiderate and unacceptable. If the coals are not completely extinguished a fire hazard may result. Many areas now require a campfire to be contained. Storing and transporting most portable campfire units after use is difficult and undesirable because of the mess. Unlike most portable campfire units this

portable campfire in a can invention is extremely compact and lightweight. The portable campfire in a can invention is approximately 11 inches in diameter, 11 inches in height and weighs approximately 14 pounds. Because the portable campfire in a can invention is a three component portable campfire with the three components integral one to the other and designed to be used in combination with each other in order to achieve design proficiency building a campfire requires only three steps. Step one: Remove the canister assembly. Step two: un-nest the upper burner assembly from the lower burner assembly and rotate the upper burner assembly 180 degrees. Then place the upper burner assembly into position on the lower burner assembly. Step three: insert desired fuel vertically into the burner assembly and ignite.

With this portable campfire in a can invention it takes about five minutes from removing the canister assembly to enjoying a full burning contained campfire. The portable campfire in a can invention avoids the use of fuel sources such as propane with the accompanying and often unacceptable features. The design of the burner allows for the use of firewood and alternative fuel sources, such as manufactured fire logs, which are cleaner and lighter to carry than firewood, if firewood is not desirable or not available. When the campfire experience is finished and it is time to extinguish the campfire the upper burner assembly is quickly and easily re-nested into the lower burner assembly. The canister assembly is set atop the canister base assembly and the catch mechanisms are engaged. The resulting airtight seal removes the air supply causing the campfire to be extinguished immediately with no smoke, sparks or debris able to escape. There is no fire hazard, the extinguished campfire is contained and no one in the surrounding area is exposed to unpleasant smoke or debris or the chance of re-ignition if the fire is presumed extinguished and left unattended. When the portable campfire in a can invention is cool the small amount of ash or residue can be appropriately discarded and the portable campfire in a can invention becomes its own clean carrying case, which is convenient to store and transport.

It is well known that to a large percentage of people campfires are considered an integral part of the rest, relaxation and enjoyment of the outdoor experience. It has become apparent that more people would have campfires if they could do so safely with ease. The object of the portable campfire in a can invention is to provide a portable campfire that makes it possible to have a campfire in a location of choice. The portable campfire in a can invention achieves this portability due to the compact, lightweight and carrying case features.

A further object of the portable campfire in a can invention is to provide a portable campfire that makes it possible to have a safe enjoyable hassle free campfire experience. The portable

campfire in a can invention achieves this due to the minimal assembly required and quick ignition of fuel that does not require carrying or connection to any type of fuel tank.

Another object of the portable campfire in a can invention is to provide a portable campfire that makes it possible to have a campfire that is considerate of the environment and others in the area. The portable campfire in a can invention achieves this because of the self-extinguishing feature.

It is yet another object of the portable campfire in a can invention to make it possible to have a portable campfire that complies with the common rules regarding containment of campfires. The portable campfire in a can invention accomplishes this due to the design of the burner assemblies and the base assembly.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING

FIG. 1 is a 3D assembly view showing how the components nest for storage.

FIG. 2 is a 3D view of canister assembly on canister base assembly.

FIG. 3 is a 3D view of the canister.

FIG. 4 is a front view of the canister.

FIG. 5 is a 3D view of the canister assembly.

FIG. 6 is a front view of the canister assembly showing the location of hardware.

FIG. 7 is a top view of the canister assembly showing the location of hardware.

FIG. 8 is a 3D view of the canister insert.

FIG. 9 is a top view of the canister insert.

FIG. 10 is a front view of the canister insert.

FIG. 11 is a 3D view of the canister gasket.

FIG. 12 is a top view of the canister gasket.

FIG. 13 is a front view of the canister gasket.

FIG. 14 is a 3D view of the canister base.

FIG. 15 is a sectional view of the canister base.

FIG. 16 is a 3D view of the centering ring.

FIG. 17 is a top view of the centering ring.

FIG. 18 is a front view of the centering ring.

FIG. 19 is a 3D view of the canister base assembly.

FIG. 20 is a sectional view of the canister base assembly and centering ring.

FIG. 21 is a 3D view of the lower burner unit.

FIG. 22 is a front view of the lower burner unit.

FIG. 23 is a 3D view of the burner base plate.

FIG. 24 is a top view of the burner base plate.

FIG. 25 is a front view of the burner base plate.

FIG. 26 is a 3D view of the lower burner unit assembly.

FIG. 27 is a section view of the lower burner unit assembly.

FIG. 28 is a 3D view of the upper burner unit.

FIG. 29 is a top view of the upper burner unit.

FIG. 30 is a front view of the upper burner unit.

FIG. 31 is a 3D view of the short log support fingers.

FIG. 32 is a front view of the short log support fingers.

FIG. 33 is a top view of the short log support fingers.

FIG. 34 is a 3D view of the long log support fingers.

FIG. 35 is a front view of the long log support fingers.

FIG. 36 is a top view of the long log support fingers.

FIG. 37 is a front view of the barbecue grill support.

FIG. 38 is a top view of the barbecue grill support.

FIG. 39 is a 3D view of the upper burner unit assembly.

FIG. 40 is a top sectional view and a front sectional view of the upper burner unit assembly.

FIG. 41 is a 3D view of the handle.

FIG. 42 is a front view of the handle.

FIG. 43 is a top view of the handle.

FIG. 44 is a 3D view of the barbecue grill.

FIG. 45 is a front view of the barbecue grill.

FIG. 46 is a top view of the barbecue grill.

FIG. 47 is a 3D view of the barbecue grill swivel rod.

FIG. 48 is a front view of the barbecue grill swivel rod.

FIG. 49 is a 3D view of the barbecue grill assembly.

FIG. 50 is a front view of the barbecue grill assembly.

FIG. 51 is a 3D view of the barbecue grill assembly.

DETAILED DESCRIPTION OF THE INVENTION

The six part compact self-extinguishing portable campfire in a can invention is comprised of the canister assembly (FIG. 5, 6, 7), lower burner unit assembly (FIG. 26, 27), upper burner unit assembly (FIG. 39, 40), canister base assembly (FIG. 19, 20), barbecue grill assembly (FIG. 49, 50, 51) and the handle 23 (FIG. 41, 42, 43). The six parts are integral one to the other and designed to be used in combination with each other in order to achieve designed proficiency.

FIG. 2 illustrates the campfire in a can invention in the storage and transportation mode as its own carrying case. To make ready for use disengage the three catch mechanisms 3. Remove the canister assembly (FIG. 5, 6, 7), which is made of 18-gauge steel, and has been shaped using the metal spinning method. Using the canister handle 2 lift and set the canister assembly (FIG. 5, 6, 7) aside. The catch mechanisms 3 and the canister handle 2 are purchased items. Lift the upper burner unit assembly (FIG. 39, 40) out of the lower burner unit assembly (FIG. 26, 27). This unique nesting of the upper burner unit assembly (FIG. 39, 40) in the lower burner unit assembly (FIG. 26, 27) allows for the compactness of the portable campfire in a can invention.

The complete upper burner unit 13 is stamped out of a sheet of 18-gauge steel on a C & C machine which punches in a predetermined pattern of .05 inch air intake holes 9, the handle holes 12, and the burner support tabs 14, which are punched using a specially manufactured tool installed in the C & C machine, and the outside edges of the upper burner unit 13. Next the upper burner unit 13 is put through a rolling machine after which it is tack welded together at weld line 22. The six burner support tabs 14 are then bent toward the outside of the upper burner unit 13 at 90 degrees. The barbecue grill supports 18 are tack welded into place, one on the top and one on the bottom of the upper burner unit 13. The four short log support fingers 15 and the four long log support fingers 16 are then welded into position on the inside of the upper burner unit 13. Thus creating the upper burner unit assembly (FIG. 39, 40).

To assemble the portable campfire in a can invention for use the upper burner unit assembly (FIG. 39, 40) is rotated 180 degrees and placed on top of the lower burner unit assembly (FIG. 26, 27). The correct position is determined by the six burner support tabs 14, which rest on top of the lower burner unit assembly (FIG. 26, 27).

The lower burner unit 8 is stamped out of a sheet of 18-gauge steel on a C & C machine which punches in a predetermined pattern of .05 inch air intake holes 9 and a row of evenly spaced .75 inch air intake holes 10 around the base of the lower burner unit 8. Next the lower burner unit 8 is put through a rolling machine and then tack welded together along weld line 22. The spun steel

burner base plate 11 is tack welded into position (FIG. 27). Thus creating the lower burner unit assembly (FIG. 26, 27).

The assembled lower burner unit assembly (FIG. 26, 27) and upper burner unit assembly (FIG. 39, 40) are used only while resting on the canister base assembly (FIG. 19, 20) thus assuring the portable campfire in a can invention's self-extinguishing feature. The portable campfire in a can invention is then ready to accept firewood or a manufactured fire log for burning. The firewood or manufactured fire log is held in the vertical centered burn position by the four short log support fingers 15 and the four long log support fingers 16. Thus achieving a 360-degree burn pattern.

The canister base assembly (FIG. 19, 20) provides a resting place for the lower burner unit assembly (FIG. 26, 27) during use, storage or transport. The canister base assembly (FIG. 19, 20) is comprised of two parts; the canister base 6 and the centering ring 7. The canister base 6 is 18-gauge spun steel shaped to include a rolled rim (FIG. 14, 15, Cross-Section A-A), which becomes the attachment point for the three catch mechanisms 3. The centering ring 7 is also made of 18-gauge spun steel, which is then centered on and welded to the canister base 6. The centering ring 7 has two functions; one, is to keep the lower burner unit assembly (FIG. 26, 27) centered at all times, the second is to serve as a storage area for the barbecue grill assembly (FIG. 49, 50, 51). The center hole 17 in the canister base assembly (FIG. 19, 20) is to prevent a vacuum from being formed during the cool down period after the fire has been extinguished by attaching the canister assembly (FIG. 5, 6 7) to the canister base assembly (FIG. 19, 20).

The barbecue grill 19 is stamped out of a sheet of 18-gauge steel on a C & C machine, which also punches out the barbecue cutouts 20. The barbecue grill 19 is then put on a metal brake to produce the ridges of the barbecue grill 19 after which the barbecue grill swivel rod 21 is attached by tack welding. Thus creating the barbecue grill assembly (FIG. 49, 50, 51). The barbecue grill assembly (FIG. 49, 50, 51) can be used when the upper burner unit assembly (FIG. 39, 40) is in either the nested or the rotated position by placing the barbecue grill swivel rod 21 into a barbecue grill support 18.

The extinguishing process can begin once the fuel is no higher than the top edge of the lower burner unit assembly (FIG. 26, 27). The actual flames, however, can be burning above the top edge of the lower burner unit assembly (FIG. 26, 27). To begin the extinguishing process place the pronged end of the handle 23 (FIG. 41, 42, 43) into the exposed handle holes 12 in the upper burner unit assembly (FIG. 39, 40), lift the upper burner unit assembly (FIG. 39, 40) off of the lower burner unit assembly (FIG. 26, 27). Lay the upper burner unit assembly (FIG. 39, 40) on its side on the ground. Remove the handle 23 (FIG. 41, 42, 43) from the handle holes 12 and place the pronged

end of the handle 23 (FIG. 41, 42, 43) into the opposite set of handle holes 12 located near the burner support tabs 14. Using the handle 23 (FIG. 41, 42, 43) lift the upper burner unit assembly (FIG. 39, 40) and place it into the lower burner unit assembly (FIG. 26, 27). Remove the handle 23 (FIG. 41, 42, 43), which is a purchased pegboard hook. Pick up the canister assembly (FIG. 5, 6, 7) by the canister handle 2 and lower it onto the canister base assembly (FIG. 19, 20). Then engage the catch mechanisms 3.

The key fire extinguishing features designed into the canister assembly (FIG. 5, 6, 7) are the canister insert 4 and the canister gasket 5. The canister insert 4 extends below the canister 1 to become a self-centering device and also forms an inside retainer for the canister gasket 5 to seat against. The canister insert 4 is cut 18-gauge steel rolled to fit inside the canister 1 then butt welded. The canister insert 4 is then tack welded into position in the canister assembly (FIG. 5, 6, 7). Next, the canister gasket 5 is installed between the canister 1 and the canister insert 4 and glued in place. The canister gasket 5 is made of high temperature silicone and is a purchased item. The combination of the canister 1, canister insert 4 and the canister gasket 5 create a seal when the canister assembly (FIG. 5, 6, 7) is placed on the canister base assembly (FIG. 19, 20) and the catch mechanisms 3 are engaged. Subsequently no air, therefore, no fire.

The best mode of this portable campfire in a can invention is by those to whom a campfire is an integral part of their rest and relaxation in the outdoors especially campers and users of all types and sizes of tents and recreational vehicles particularly those with limited space and carrying capacity for both a campfire container and the fuel.

This portable campfire in a can invention is equally suitable for use at other increasingly popular venues where some campfire restrictions do apply and convenient fuel is desirable. Such venues include, but are not limited to, river rafting, 4-wheel off-road excursions, and tailgating and camping at various sports events such as ball games and car races.

A further mode of the portable campfire in a can invention is by those who seek the enjoyment of a campfire at either their primary or secondary residence. Often those who enjoy campfires in a non-camping environment also seek the lightweight compact size, convenience and ease of use, as well as the self-extinguishing and storage features.

While the preferred embodiment of the invention have been shown and described, it will be apparent to those skilled in the art that changes and modifications may be made therein without departing from the spirit of the invention, the scope of which is defined by the appended claims.